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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,302	11/13/2003	Kazuyoshi Kawakami	1417-444	5777
23117	7590	02/03/2006	EXAMINER	
NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203			POULOS, SANDRA K	
			ART UNIT	PAPER NUMBER
			1714	

DATE MAILED: 02/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/706,302

Applicant(s)

KAWAKAMI ET AL.

Examiner

Sandra K. Poulos

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/17/04; 4/23/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because the word “comprising” is legal phraseology. Examiner suggests replacing with “containing” or “including.”

See MPEP § 608.01(b).

Claim Objections

2. Claims 1-4 are objected to because of the following informalities:
 - a. The phrase “white coloring laser-marking” appears to modify “thermoplastic resin” but the relationship is unclear because it is the laser that is doing the marking on the thermoplastic resin and the resulting mark is white colored, which isn’t apparent from the phrase “white coloring laser-marking thermoplastic resin composition.” Examiner suggests “A thermoplastic resin composition for laser marking that is capable of developing white coloring.”
 - b. The comma after “aromatic vinyl-based compound” in line 6 of claim 1 appears to be misplaced.
 - c. It is unclear what “% by mass” is based on because it appears to change throughout the claim, for example “the total content of b1 and b2 is 100% by mass” appears to be based on component (B) but for “(A), (B), and (C) is 100% by mass” appears to be based on the mass of the total composition.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "said components (A), (B), and (C)" in the fifth line from the bottom. There is insufficient antecedent basis for this limitation in the claim. Components (B) and (C) are not specifically referred to as "components." Claims 3-4 also make reference to "said component (C)" and claim 2 refers to "the component (B)."

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Ito et al (US 2002/0052438).

Ito discloses a thermoplastic resin composition for laser marking containing (A) 100 parts by weight of a thermoplastic resin comprising 1 to 100% by weight of a rubber-reinforced resin (A-1) obtained by polymerizing 95 to 30% by weight of at least one monomer (b) selected from aromatic vinyl compounds, vinyl cyanide compounds,

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(meth)acrylic esters, acid anhydride-based monomers and maleimide-based compounds in the presence of 5 to 70% by weight of a rubber-like polymer (a) and 99 to 0% by weight of a polymer (A-2) obtained by polymerizing at least one monomer selected aromatic vinyl compounds, vinyl cyanide compounds, (meth)acrylic esters, acid anhydride-based monomers and maleimide-based compounds (para 8-10). The total of (A-1)+(A-2) is 100% by weight (para 8-10). Polymerized (meth)acrylic ester is present in an amount of 30 to 70% by weight and the rubber-like polymer (a) is a mixture of at least two rubber-like polymers differing in particle size; (B) 0.01 to 5 parts by weight of at least one black system compound selected from black iron oxide and titanium black; and (C) 0.01 to 5 parts by weight of a dye and/or an organic pigment (para 8-11).

Examples of the vinyl cyanide compounds useable as the monomer (b) include acrylonitrile and methacrylonitrile, acrylonitrile being preferred (para 22). The aromatic vinyl compounds include styrene and others (para 21); methacrylic esters (para 23); and maleimide-based compounds (para 25) are also useable together as monomers in the polymerization. The amount of methacrylic ester contained in the thermoplastic resin (A) is 30-70 % by weight, preferably 35-55 % by weight (para 47). The amount of functional group containing vinyl based monomer to be copolymerized is 0.1-15 % by weight, preferably 0.5 to 12 % by weight (para 44). Rubber content is 10-65 % by weight, preferably 25-55 % by weight (para 40). When a maleimide-based compound such as mentioned in paragraph 25 is copolymerized in an amount of 30 to 60% by weight in the monomer (b), heat resistance of the thermoplastic resin composition for laser marking of

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the present invention is improved (para 25). The black based components are disclosed in paragraphs 55-59.

When there are no pigments the composition is marked with a white color when titanium black is oxidized by exposure to light, and then assumes the white color of titanium dioxide (para 68). The marks may be of color when there is use of pigments (paragraph 61-62).

The examples disclose the resins polybutadiene/styrene/methylmethacrylate/acrylonitrile and disclose the preparation of the rubber-reinforced resin (para 118-164, examples and tables).

Therefore, Ito anticipates the cited present claims.

5. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Mc Kee et al (US 6,020,106).

Mc Kee discloses transparent molded Transparent molded articles having a high-contrast laser inscription thereon are produced from a polymer mixture consisting of: (A) from 40 to 99% by weight of a polymer of an alkyl ester of (meth)acrylic acid, (B) from 1 to 50% by weight of a copolymer of styrene and acrylonitrile having an acrylonitrile content of from 8 to 30% by weight, (C) from 0 to 50% by weight of rubber particles, and (D) from 0 to 20% by weight of additives and processing auxiliaries, by preparing a transparent molded article from the polymer mixture, and exposing the transparent molded article to laser radiation (abstract).

The acrylates and methacrylates and mixtures thereof are generally employed in amounts in the range from 50 to 100% by weight, preferably from 80 to 100% by weight (col 2, lines 23-26). As further comonomers, up to 50% by weight, preferably up to 20% by weight, of the following monomers can be employed: vinylaromatic compounds; acrylic and methacrylic acid; maleic acid and the imides thereof; acrylonitrile and methacrylonitrile (col 2, lines 27-42).

The method of laser marking is disclosed in column 3, lines 58-67 and column 4, lines 1-34. The example in column 4 combines a copolymer comprising 99% by weight of methyl methacrylate and 1% by weight of methyl acrylate and a copolymer comprising 81% by weight of styrene and 19% by weight of acrylonitrile and 10 ppm carbon black.

Therefore, Mc Kee anticipates the cited present claims.

6. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Itoh et al (US 5,760,120).

Itoh discloses a laser marking resin composition excellent in appearance of molded article and impact resistance which comprises: (A) 100 parts by weight of a rubber-reinforced vinyl resin consisting of: (A-1) 1 to 100% by weight of a rubber-reinforced resin having a grafting degree of 5 to 150% by weight obtained by polymerizing, in the presence of (a) 5 to 70% by weight of a rubbery polymer, (b) 95 to 30% by weight of at least one monomer selected from the group consisting of an aromatic vinyl compound, a vinyl cyanide compound, a (meth)acrylic acid ester, maleic

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anhydride and a maleimide compound, provided that (a)+(b)=100% by weight, and (A-2) 99 to 0% by weight of a polymer obtained by polymerizing at least one monomer selected from the group consisting of an aromatic vinyl compound, a vinyl cyanide compound, a (meth)acrylic acid ester, maleic anhydride and a maleimide compound, provided that (A-1)+(A-2)=100% by weight, and (B) 0.01 to 30 parts by weight of at least one compound selected from the group consisting of (B-1) titanium black, (B-2) black iron oxide, (B-3) yellow iron oxide and (B-4) carbon black (col 1, lines 36-62; col 3, lines 35-64).

When a mixture of the rubber reinforced vinyl resin (A) with titanium black (B-1) is irradiated with a laser, a sharp white marking having a good contrast is obtained (col 7, lines 21-23). The rubber polymer is further specified in column 2, lines 17-38 and 61-65; the aromatic vinyl compound is further specified in column 2, lines 39-44 and column 3, lines 13-17; the vinyl cyanide is in column 2, lines 45-47 and column 3, lines 18-22; the methacrylic acid is in column 2, lines 48-60 and column 3, lines 23-26.

Therefore, Itoh anticipates the cited present claims.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sumimoto et al (US 20020055565 and US 20030050368) discloses a flame retardant thermoplastic resin composition comprising: a rubber-reinforced thermoplastic resin comprising: an aromatic vinyl compound, a cyanided vinyl compound and, the other copolymerizable monomer in the presence of a rubber polymer.

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Kawakami et al (US 20040034142) discloses a laser-marking thermoplastic resin composition, comprising: [A] a rubber-reinforced thermoplastic resin comprising a copolymer resin (A1) obtained by polymerizing a vinyl-based monomer (b) containing a (meth)acrylic acid ester in the presence of a rubber polymer (a), or a mixture of the copolymer resin (A1) and a (co)polymer (A2) of vinyl-based monomer(s), said rubber polymer (a), (meth)acrylic acid ester units (b1) and monomer units (b2) other than the (meth)acrylic ester units (b1) being contained in amounts of 5 to 40% by weight, 25 to 60% by weight and 0 to 70% by weight, respectively, and [C] a black substance.

Sagane et al (US 6420449) discloses a resin composition for white marking comprising a thermoplastic resin, a non-terpene-series higher fatty acid or a derivative thereof and a black dye or pigment with a styrenic resin that is an acrylonitrile-butadiene-styrene copolymer or a mixture of an acrylonitrile-butadiene-styrene copolymer and an acrylonitrile-styrene copolymer.

Zen et al (US 20020128392) discloses a laser marking thermoplastic resin composition containing one or more rubber reinforced thermoplastic resins, one or more acrylic resins and one or more thermoplastic norbornene resins, and further containing one or more styrenic resins and coloring agents.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sandra K. Poulos whose telephone number is (571) 272-6428. The examiner can normally be reached on M-F 7:00-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SKP

Sandra K. Poulos

1/31/2006

Vasu Jagannathan
VASU JAGANNATHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700